

REMARKS/ARGUMENTS

Claims 1-16 are pending in this application. The Examiner has withdrawn claims 8-12 from consideration. In this Amendment, Applicant AMENDS claims 1, 3, 6, and 13-16.

Applicant's counsel greatly appreciates the courtesies extended by the Examiner in the telephone interview of May 18, 2011. Applicant's counsel and the Examiner discussed possible amendments to claims 1 and 13 to overcome the outstanding 35 U.S.C. § 112 and prior art rejections.

In § 5 on page 3 of the outstanding Office Action, the Examiner objected to claims 1, 13, and 15 for allegedly containing minor informalities. Applicant has amended claims 1, 13, and 15 to correct the minor informalities noted by the Examiner. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the objections to claims 1, 13, and 15.

In §§ 8-10 on pages 3 and 4 of the outstanding Office Action, the Examiner rejected claims 1, 13, and 15 under 35 U.S.C. § 112, first paragraph as allegedly containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In § 12 on pages 4 and 5 of the outstanding Office Action, the Examiner rejected claims under 35 U.S.C. § 112, second paragraph as allegedly being indefinite.

Based on the telephone interview with the Examiner on May 18, 2011, Applicant has amended claims 1, 13, and 15 to recite a first electrode, at least one second electrode, and a third electrode, which the Examiner indicated would likely overcome these 35 U.S.C. § 112, first and second paragraph rejections.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1, 13, and 15 under 35 U.S.C. § 112, first and second paragraphs.

In § 14 on page 5 of the outstanding Office Action, the Examiner rejected claims 1, 3, 5, and 6 under 35 U.S.C. § 102(b) as being anticipated by Herbert (U.S. 5,777,596). In § 20 on page 6 of the outstanding Office Action, the Examiner rejected claims 2, 4, and 13 under 35 U.S.C. § 103(a) as being unpatentable over Herbert in view of Nakazono et al. (JP 9-251820). In § 24 on page 8 of the outstanding Office Action, the Examiner rejected claims 14-16 under 35 U.S.C. §

103(a) as being unpatentable over Herbert in view of Serrano (U.S. 4,290,061). In § 28 on page 9 of the outstanding Office Action, the Examiner rejected claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Herbert in view of Nakazono et al. and further in view of Serrano.

Applicant respectfully traverses the rejections of claims 1-7 and 13-16.

Applicant's claim 1 recites:

A display comprising:

a first electrode that is a frontmost electrode of the display;

at least one second electrode arranged opposite to the first electrode,

the first electrode and the at least one second electrode activate an area of the display after the display has been activated; and

a capacitance sensor arranged to detect a presence of a user and including:

a third electrode, different from the at least one second electrode, that is one of:

a case of the display; and

a power electrode of a circuit that is arranged to drive or control the display; wherein

the capacitance sensor also includes the first electrode; and

the first electrode is also a sensing electrode of the capacitance sensor to detect the presence of the user. (emphasis added)

Applicant's claim 13 recites features that are similar to the above-emphasized features recited in Applicant's claim 1.

In § 15 on page 5 of the outstanding Office Action, the Examiner alleged that segment electrode **16** of Herbert teaches the first electrode recited in Applicant's claims 1 and 13 and that rear electrode **18** of Herbert teaches the second electrode recited in Applicant's claims 1 and 13.

Applicant has amended claim 1 to recite the features of "a first electrode that is a frontmost electrode of the display," "at least one second electrode arranged opposite to the first electrode," "a third electrode, different from the at least one second electrode, that is one of[] a case of the display[] and a power electrode of a circuit that is arranged to drive or control the display," "the first electrode and the at least one second electrode activate an area of the display after the display has been activated," and "the first electrode is also a sensing electrode

of the capacitance sensor to detect the presence of the user.” Support for these features is found, for example, in claim 4 of Applicant’s claims, **Fig. 1** of Applicant’s drawings, and paragraphs [0005], [0006], and [0008] of Applicant’s corresponding application publication U.S. 2007/0279332. Applicant has amended claim 13 to recite similar features.

Applicant has amended claims 1 and 13 to recite a third electrode to clarify that Applicant’s invention does not sense the presence of a user by using the rear electrode(s), i.e., the at least one second electrode as recited in claims 1 and 13, that activate(s) an area of the display. Instead, Applicant’s invention claimed in claims 1 and 13 uses the frontmost electrode (i.e., the first electrode recited in claims 1 and 13) and either a case of the display or a power electrode (i.e., the third electrode) to sense the presence of a user.

The capacitor formed by the front and rear electrode of a display has a large capacitance (and correspondingly long charge time) because of the material (e.g., liquid crystal material and electroluminescent material) between the front and rear electrodes that is activated to cause information to be displayed. As explained in paragraph [0007] of Applicant’s corresponding application publication US 2007/0279332, Applicant’s capacitance sensor includes a pair of spaced apart electrodes whose capacitance is determined by the size of the electrodes, by the distance between them, and by the electrical nature of the medium or material between them.

In contrast to Applicant’s claimed invention, Herbert uses the rear electrode **18** of the liquid crystal display element **10**, which is used to activate an area of the liquid crystal display defined by liquid crystal display element **10**, and the front electrode of the display element to form a capacitor. See liquid crystal display element **10** on the right-hand side of **Fig. 6** of Herbert. Further, Col. 2, ll. 1-13 of Herbert states:

In conceiving of the present invention, it was appreciated that the capacitance, and therefore the charge time when using a constant current source, of a liquid crystal display element increases when an external touch is applied to the element. In this regard, one aspect of the present invention includes: (a) a plurality of LCD elements, (b) means for applying a charge to each of the elements, c **means for monitoring a voltage across each of the elements and for using the voltage to compare the charge time of each of the elements to a reference charge time value**; and (d) means, responsive to the means for

monitoring, for determining which, if any, of the LCD elements in the plurality are being touched. (emphasis added)

Thus, Herbert fails to teach or suggest the features of “a first electrode that is a frontmost electrode of the display,” “at least one second electrode arranged opposite to the first electrode,” “a third electrode, different from the at least one second electrode, that is one of[] a case of the display[] and a power electrode of a circuit that is arranged to drive or control the display,” “the first electrode and the at least one second electrode activate an area of the display after the display has been activated,” and “the first electrode is also a sensing electrode of the capacitance sensor to detect the presence of the user” as recited in Applicant’s claim 1 and as similarly recited in Applicant’s claim 13.

The Examiner has relied upon Nakazono et al. to allegedly cure various deficiencies in Herbert in rejecting Applicant’s claim 13. However, Nakazono et al., applied alone or in combination with Herbert, fails to teach or suggest the features of “a first electrode that is a frontmost electrode of the display,” “at least one second electrode arranged opposite to the first electrode,” “a third electrode, different from the at least one second electrode, that is one of[] a case of the display[] and a power electrode of a circuit that is arranged to drive or control the display,” “the first electrode and the at least one second electrode activate an area of the display after the display has been activated,” and “the first electrode is also a sensing electrode of the capacitance sensor to detect the presence of the user” in combination with the other features recited in Applicant’s claims 1 and 13.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b) as being anticipated by Herbert and the rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Herbert in view of Nakazono et al.

Applicant’s claim 14 recites:

A display comprising:
a capacitance sensor arranged to detect a presence of a user and
including a first electrode defined by a front electrode of the display; and

a protection diode arranged to protect the capacitance sensor from an excessive voltage on the front electrode and including:

a first end connected to the front electrode of the display; and

a second end connected to at least one circuit element of the capacitance sensor. (emphasis added)

In the Amendment filed January 18, 2011, Applicant amended claim 14 to recite the features of “a protection diode arranged to protect the capacitance sensor from an excessive voltage on the front electrode.” In § 25 on page 9 of the outstanding Office Action, the Examiner alleged that the combination of Herbert and Serrano teaches the features recited in Applicant’s claim 14. The Examiner alleged that the rectifying diode **118** of Serrano corresponds to the protection diode recited in Applicant’s claim 14.

Applicant respectfully disagrees.

Neither of Herbert nor Serrano teaches a protection diode as recited in Applicant’s claim 14. First, in the first paragraph of § 25 on page 8 of the outstanding Office Action, the Examiner admitted that Herbert fails to teach or suggest the use of a protection member. Accordingly, Herbert must also fail to teach or suggest the use of a protection diode. Thus, Herbert fails to teach or suggest the feature of “a protection diode arranged to protect the capacitance sensor from an excessive voltage on the front electrode” as recited in Applicant’s claim 14.

Second, although Serrano teaches the use of a rectifying diode **118**, Serrano teaches that that the rectifying diode **118** is used for rectification and fails to teach or suggest that the rectifying diode **118** could or should be used for protection as recited in Applicant’s claim 14. Col. 7, ll. 63-66 of Serrano states, “A [rectifying] diode **118** is connected in series between the output of the amplifier **114** and a parallel RC output network comprising a resistor **120** and a capacitor **122**.” This is the only discussion of rectifying diode **118** or of any other diode in Serrano. One of ordinary skill in the art would readily recognize and understand that the rectification discussed in Serrano involves converting AC power to DC power and is not related to protection. That is, there is no hint or suggestion in Serrano to modify the circuit of Herbert to include a protection diode as suggested by the Examiner. Accordingly, Serrano fails to teach

or suggest the feature of “a protection diode arranged to protect the capacitance sensor from an excessive voltage on the front electrode” as recited in Applicant’s claim 14.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Herbert in view of Serrano.

Accordingly, Applicant respectfully submits that the prior art of record, applied alone or in combination, fails to teach or suggest the unique combination and arrangement of elements recited in claims 1, 13, and 14 of the present application. Claims 2-7, 15, and 16 depend upon claims 1 and 14 and are therefore allowable for at least the reasons that claims 1 and 14 are allowable. Applicant respectfully requests that the Examiner rejoin, consider, and allow claims 8-12 when generic claim 1 is allowed.

In view of the foregoing amendments and remarks, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

To the extent necessary, Applicant petitions the Commissioner for a ONE-month extension of time, extending to August 15, 2011, the period for response to the Office Action dated April 15, 2011.

Application No. 10/598,156

August 1, 2011

Reply to the Office Action dated April 15, 2011

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Dated: August 1, 2011

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